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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,737	04/25/2005	Dario Calogero Castiglione	11016-0037	9020
22902	7590	07/25/2006	EXAMINER	
CLARK & BRODY 1090 VERMONT AVENUE, NW SUITE 250 WASHINGTON, DC 20005			LEE, BENNY T	
			ART UNIT	PAPER NUMBER
			2817	

DATE MAILED: 07/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/532,737	CASTIGLIONE ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Benny Lee	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,14; 7-13 is/are rejected.
- 7) ☒ Claim(s) 3-6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 April 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>25 April 2005</u>   | 6) <input type="checkbox"/> Other: _____                                    |

The disclosure is objected to because of the following informalities: Paragraph [0002], note that it is unclear whether “terrestrial and astronomy” is an appropriate characterization and “ionizing” should be rewritten as --ionizing--. Paragraphs [0003] & [0051], note that “Owing” should be rewritten as --Due--. Paragraphs [0005] & [0011], note that the reference numbers associated with the “ROSEN et al” reference should be deleted (unless there is a drawing figure depicting these features in the present disclosure). Paragraphs [0008], [0013], [0014]: note that “said” should be rewritten as --the-- at each occurrence. Paragraph [0012], note that “is another phenomenon than ...” is vague in meaning and needs clarification and “that would not normally be present” should be relocated from its present location to a location following “modes” in the same paragraph for clarity of description. Paragraph [0014], note that reference to “and phase” appears to be an incomplete recitation, which needs clarification. Paragraph [0021], note that “Absorbtion” is the incorrect spelling. Paragraph [0022], note that “illustrates” should be inserted after “FIG. 7” and “FIG. 8”, respectively for clarity of description. Paragraph [0028], note that “15 and 16a and 16b” should be rewritten as --15, 16a and 16b-- and the corresponding drawing figures should be associated with the described modes. Paragraph [0030], note that “and” (i.e. prior to “FIG. 18”) should be deleted as being inappropriate. Paragraph [0032], note that reference to “quasi-metallic layer 26” is vague in meaning and needs clarification. Paragraph [0039], note that “upper 21 and lower 22 surface” should be rephrased as --upper surface 21 and lower surface 22 (see FIG. 2)-- for an appropriate characterization and “ends 24, 25” should reference --(Fig. 1)-- in which they appear. Paragraphs [0042] & [0056], note that “Whilst” should be rewritten as --While-- for grammatical correctness. Paragraph [0044], note that “material 19” should reference --(FIG. 1)-- in which it appears. Paragraph [0056], note that it is

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unclear whether “apertures 30” is a proper characterization. Paragraph [0060], note that --which is-- should precede “greater” for clarity of description. Paragraph [0066], note that it is unclear if “ $n=n_i + jn_i$ ” is the correct characterization. Paragraph [0073], note that a --,-- should be inserted after “FIG. 7”. Paragraph [0092], note that “conclude that happens a mode ...” is vague in meaning and it is unclear whether “be seen in FIG. 8b” is a proper characterization. Paragraph [0096], note that “means, see FIG. 5 that,” is vague in meaning. Paragraph [0101], note that it is unclear whether the references to “FIG. 12a” and “FIG. 12b” as recited herein are proper within the descriptive context. Appropriate correction is required.

The disclosure is objected to because of the following informalities: Note that the following terms should be rewritten into standard U.S. terminology at all occurrences throughout the specification: “ionising”; “millimetre”; “metallised”; “oxidised”. Appropriate correction is required.

The disclosure is objected to because of the following informalities: Note that the following reference labels need a corresponding description in the specification’s description of that figure: Figs 3, 4 (13, 15, 16); Fig. 3 (10, 14); Fig. 4 (17, 20); Fig. 6 (I, II); Figs. 7, 8, (I, II, III); Fig. 11, the dimensions labeled therein; Figs. 12a, 12b, the reference labels therein; Fig. 13 (I, II, III, IV); Fig. 14 (I, II, III, IV, V); Figs. 15, 16a, 16b, the descriptive wording therein; Fig. 17 (I, III, V, VII, and the descriptive wording therein); Fig. 18, in its entirety. Appropriate correction is required.

The drawings are objected to because in Fig. 5, note that “Absortion” needs to be correctly spelled. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement

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drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claims 2, 9-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 2, note that “e.g. SI, GaAs or Ge” render the claim vague and indefinite as to whether the claim is intended to be limited to these specific photoconductive materials.

Clarification is needed.

In claims 9-13, note that it is unclear which one “mode” is intended by the recitation of “said mode”. Clarification is needed.

In claim 11, note that it is unclear how “a field” is intended to be related to the earlier recitation of “its field”, as recited in independent claim 7. Clarification is needed.

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 14 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by DeFonzo et al or Rosen et al (both cited by applicants’).

DeFonzo et al (Fig. 3) and Rosen et al (Fig. 1a) each discloses a waveguide phase shifter/attenuator comprising : a waveguide (24 In DeFonzo et al ; 10 in Rosen et al); a photo-responsive material (Si or Ge slab 24 in Rosen et al; semiconductor slab 20 in DeFonzo et al) disposed along an internal wall (22 in DeFonzo et al; 12 in Rosen et al) of the waveguide; an external light source (12 in DeFonzo et al; 30 in Rosen et al) emitting light, which passes through an aperture (26 in Rosen et al; 30 in DeFonzo et al) in the internal wall (28 in DeFonzo et al; 14 in Rosen et al) and eventually impinge onto a surface of the photo-responsive material at an angle thereto. It should be noted that the light impinges onto an “outside” surface of the photo-responsive material (i.e. a surface which is exposed to the waveguide interior can be arbitrarily designated as an “outside” surface) such as to provide for internal reflection of waves within the waveguide.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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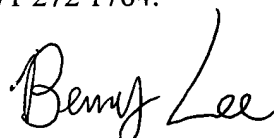
This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 7, 8, 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rosen et al (cited by applicants').

Note that Rosen et al (Fig. 1a) discloses the semi-conductive slab (24) as being spaced from the internal wall of the waveguide. However, Rosen et al does not explicitly disclose the claimed carrier concentration values. Although Rosen et al does not disclose carrier concentration values, one of ordinary skill in the art would have recognized such carrier concentrations as being conventional values based on the applied optical illumination, thus suggesting the obviousness of such a modification. Moreover, note that by virtue of the rectangular waveguide, those of ordinary skill in the art would have obviously recognized the TE<sub>10</sub> mode as the optimal mode for such a rectangular waveguide.

Any inquiry concerning this communication should be directed to Benny Lee at telephone number 571 272 1764.

B. Lee



BENNY T. LEE  
PRIMARY EXAMINER  
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